



## RESPONSE TO NON-FINAL REJECTION OF APPLICATION NO. 10065945

### SUMMARY

The conflicts that exist between the referenced patents and our patent application as presently written have been correctly detailed. It is our belief, however, that our proposed application is uniquely different from the cited patents.

We will clarify the intended rationale of our application and rewrite the submission to better describe this rationale to cancel these conflicts. In addition, the submission will be redesigned to emphasize the specific application as a microscope illumination source.

### APPROACH

First, the intent of the proposed invention will be explicitly described.

Second, the rationale(s) for suggesting that there are no conflicts with the cited patents will be detailed.

#### 1. Intent

The salient feature of our device is the capture of the unused radiated power from any conventional omni directional light source (e.g., a light bulb or an arc lamp) and the subsequent redirection of this energy to intensify the illumination of an object under microscopic analysis. To accomplish this goal, the radiator is enshrouded by an array of optical fibers configured to efficiently receive the 3-dimensional emanations of a centrally located radiator.

Present omni directional illumination systems for microscopes channel that portion of the forward radiation pattern that impinges on the input of the microscope's illumination port. This prime input is supplemented with additional light energy by redirecting a portion of the rearward emanation with a reflector assembly.

It is the intent of our proposed system to gather a major portion of the unused radiated light energy that is not captured by the directly intercepted and reflected portions of the omni directional radiation pattern. Our fiber optic array has been designed to intercept a larger portion of the spherical radiation pattern than the existing light systems. There is no constraint on the type of point-source radiator being used and the radiator is amenable to easy replacement.

#### 2. Conflict Analysis

Patents 4,444,459, 3,934,148, and 5,558,422 are all concerned with the ability of devices to redirect the radiation pattern of a radiated light source for the purpose of either data transference or decorative enhancements.

Patent 5,878,070 describes a semiconductor lasing structure that utilizes a closely fitted wave-guide to capture the edge-radiated energy from a lasing disc.

1. None of these devices utilize the circular fiber optic array to capture radiated light energy; rather they all use the array(s) to inwardly radiate energy from the array to be passively distributed.
2. None of these devices is primarily concerned with enhancing the efficient power transfer of light energy from a family of omni directional radiators.
3. All of the referenced patents describe systems that are sensitive to electromagnetic radiation primarily in the horizontal plane; no attempt is made to capture and utilize any spherically radiated energy from a centrally located independent point light source.

## DETAILS

### WOODWELL (4,444,459)

As stated, this is an optical slip ring. The object of this invention is the transference of optical data between two concentric objects that can be rotationally displaced relative to each other. This function is analogous to a conventional rotor/stator rotating system wherein communication (commutating) is required between two concentric cylinders that experience a relative rotational displacement. The system described has uniquely accomplished this goal with a non-contact optical interface arrangement.

Efficient power transfer is not the aim of this patent; data transfer from the fixed "outside world" to a rotating receiver is the goal. An electrical input modulates a light source, which excites a circular fiber optic array (the stator) that is received by the internal rotor and reconverted to an electrical analog of the input. Once the optical interface (stator-to-rotor) has been broached, the data is demodulated into an electrical analog for subsequent signal processing.

The light source in this patent should not be, and, is not, an omni directional radiator. For maximum power transfer, the modulated light source should be tightly coupled to the input face of the fiber optic cable where it is subsequently allowed to radiate inward to the receiver location. An omni directional radiator would inefficiently radiate the bulk of its energy away from the fiber optic input.

In our system:

An omni directional radiator is positioned at the center of the fiber optic array and radiates from this point outward in all directions. The vertical profile of the enshrouding array serves to capture a large percentage of the energy that is radiated upward and out of

the horizontal plane. There is no power enhancement of the power of the prime light source of the Woodwell system; data transfer is the prime goal.

There is no rotational displacement of the radiating or receiving elements of our device.

There is no data modulation and/or subsequent detection of any such data. Our intent is to increase the light-gathering efficiency of an unmodulated light source for the purpose of more effectively illuminating a microscope specimen. .

COLLINS (3,934,148)

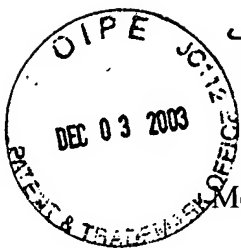
This invention is concerned with the redirection of light energy. There is no power gain of the original light source. No attempt is made to capture the omni directionally radiated light from the fluorescent tubular radiator.

SANFORD (5,558,422)

This invention is solely for the purpose of redirecting the available light energy for decorative purposes. It amounts to a lossy redistribution of a singular light source into a myriad of destinations.

SENG-TIONG HO, ZHANG (5,878,070)

This invention is about a structure for the development of a laser-type device. It does not relate to the use of an incoherent light source to be used for the purpose of illuminating an object to enhance its view ability. It is not applicable to improving the light output from a family of structurally independent omni directional radiators.



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Monday, December 01, 2003

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Re: Application/Control Number: 10/065,945

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TECHNOLOGY CENTER 2800

The following comments are in response to your non-final rejection of our Patent Application No. 10065945.

After reviewing our suggested modifications to the application, please advise us if additional alterations are necessary or whether these changes bring our ammended application into compliance with the Patent Office's qualification requirements.

A copy of the rewritten specification is enclosed.

Sincerely,

B. Petrillo  
Rhodes Instrument Corp.